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to review in brief the whole course of his scientific work, and to acknowledge his intellectual debt to Lamarck and Darwin, Schopenhauer and Fechner. We should all have connected him with three of these men, but I doubt if we should readily have thought of the fourth.

E.B.T.

*The Physical Growth of Children from Birth to Maturity.* By BIRD T. BALDWIN. University of Iowa Studies in Child Welfare, from the Iowa Child Welfare Research Station. Iowa City, University of Iowa, 1921, Vol. I, No. 1. pp. 411.

The author presents a comprehensive survey of studies which treat of physical growth, together with a more intensive study of the growth of (sometimes only a few) individuals taken at intervals over a considerable period of time. It represents a serious, methodical effort to establish norms which shall be based upon the growth of the same persons and not, as is the rule, upon different persons at different ages. Not the least important part of the *Study* is the plea for standard apparatus and for uniform procedure in making measurements. In the case of chart LIII, p. 150, where he gives the weight in pounds, the author departs from his demand for the universal use of the metric system for scientific work. One may or may not agree in the matter of choice of measurements to be taken; but one must admit that the 23 measurements chosen are, perhaps, as important as any others. We especially welcome the inclusion of psychophysical measures. Some might wish to take fewer measurements, and to work intensively till reliable norms are to be established,—thereby denying or ignoring the doctrine set out in the *Study*, which assumes that normal growth is not only a matter of amount but also of relation; that the relation of weight to height is to be considered just as well as weight itself. In any event, the author does well to emphasize the need of case-histories in an endeavor to determine the relation between growth and nutrition, disease, sex, race, geography and environment.

The first section of the *Study*, which deals with instruments and methods of measurement, is well illustrated by photographic reproductions, so that the form of the apparatus and the manner of their use are perfectly clear. Even more photographs would serve the purpose of standardization, although the description may be taken as ample in most cases. Yet on p. 21 we find that "the child's *left* middle finger touches a vertical wall or moulding" and "that the observer applies the square lightly against the free end of the middle finger of the *left* hand:" a statement which is obviously at fault, although one which anybody with sense can correctly interpret; it only emphasizes the importance of illustrations, since standardized procedure is, of all things, the prime requisite. Only a portion of the 23 measurements outlined find a place in most of the tables and charts; only 2 in the charts and tables for babies; 15 in the tables and 3 in the charts for pre-school children; 8 in the charts and 15 in the tables and profiles for school children, while an additional measurement comes into the chapter on anatomical age.

Chapters III, IV and V are replete with tables of averages for groups and of individual measurements, which show the absolute and relative gain in the various physical dimensions for various ages; with charts which give the growth-curves of individual boys or girls in a single dimension; and, of especial note, with the synoptic profiles of growth, which sum up in concise form the growth-history of the individual in 15 dimensions,—although the numerous inversions are inexplicable in terms of any tables given and the author says nothing about them. In the summary at the end of the chapter on infants there are two conclusions which seem to oppose each other. We are told that there is no positive correlation between weight at birth and weight at the end of the first year; in the following paragraph we read that from 60 to 70 percent of the babies which are above average

weight at the beginning of the year are above average at the end of the year and conversely. No figures are given; but it seems that, if 65 percent of the heavy remain heavy and 65 percent of the light remain light, a positive correlation of some degree would surely follow.

All this tends to emphasize the basic notion of the work, namely, the idea that study should be made of the same individual throughout the period of his or her physical development; that we should study the growth of individuals and not of masses. It results that there is no true single norm to which all should conform, but rather that there are general types or forms of curves of growth, and that the individual should approach to type although his curve of growth may rise above or fall below the average. By the time a child has reached school age, if there is a record of his growth taken at semi-annual or even at annual intervals, the course of the curve of growth has gone far enough for a forecast of future normal development.

Although growth should and does approach a norm, for after all children are more alike than different in their development, the notion that growth is an individual matter and a matter of interrelated parts with emphasis on the interrelations finds further amplification in Chapter VI, where we have the inter- and partial coefficients of correlation between 8 traits, 3 of which are psychophysical in nature; the coefficient of variation; the indices of growth, and the percent of increase from year to year. These, especially the indices of growth to which attaches a good deal of importance, help to give a more adequate picture of the total aspect of growth in all its parts and in all its relations. The figures of Table XXVII, p. 146, do not bear out the second conclusion on p. 147, "that for weight girls are more variable than boys at six years of age and six years later."

In Part III we find an unusual distinction made between anatomical and physiological age. The former finds its principal measure in the surface areas of the carpal bones as shown in roentgenograms and as measured by the planimeter. The reader need scarcely be reminded of the author's long and persistent interest in the subject of physiological age in its relation to mental maturity; yet this topic receives, perhaps, the least adequate treatment of any in the book. The sole criterion offered or discussed of physiological age is the age of pubescence for boys and of physiological maturation for girls, from which the author concludes "that girls who mature early are on the average close to the norm or below it," a fact not confirmed by the figures given on pp. 191-192, where we find that all girls who matured at the early ages were well above the average height of the groups of which they formed a part. It may be that the author means that the girls who mature at 11 and 12 years old are slightly below the normal height at the median age of maturation, which age is about 13 years 8 months.

The classification of practically all extant studies on physical growth under 10 main heads with some 60-odd sub-heads, with short paragraphs mixed in here and there pointing out trends, deficiencies and relationships, will form a logical starting-point, a point of orientation, for one about to start work along this line; it can do no more than orientate, but it can do that very well indeed.

The notes of reference, appended to the several extensive tables of Part V, which indicate the race or class of persons measured, may be a sufficient explanation of the wide variation in height found by workers in the same country (these differences amount in some cases to as much as 10 or 12 cm.); but when the difference in growth is as much as that indicated, it becomes all the more evident that not a single norm but a set of norms or limits of normality must be our guide, and that the ratios or indices of growth may be the most valuable measure.

The last, though not the least valuable part of the *Study*, is the annotated bibliography of 911 titles which makes up the bulk of the concluding section. We may say in summary that the *Study* is important, not for what

it completes (for the norms and conclusions will have to receive much verification or modification, since they are in many cases based on too few cases), but rather for the programme of work laid out. Because it is programmatic, rather than final, it holds all the more interest for any one who would carry forward the task set; the task of completely understanding physical growth in all its aspects, relations and dependences.

L. B. HOISINGTON

*Poetic Origins and the Ballad.* By LOUISE POUND. New York, The Macmillan Company, 1921. Pp. x, 247.

From a study of early poetry and songs recorded in manuscript or passed on orally from generation to generation, the author brings together evidence to support the several theses which she maintains throughout the book. She insists that "there is no sufficient proof that narrative lyrics were ever, anywhere, at any time, by any people, made and sung at the dance." The dance songs of primitive peoples are not narrative, and the earliest English dance songs are not narrative. When "real ballads" are used as dance songs they tend to decay by repetition, and songs used as dance songs do not develop into ballads, but are simplified into some "striking line or formula." Her second contention is that the authorship of primitive poetry is not "communal," but that "the gift of song seems as instinctive in man as the gift of rhythmic motion, not a development from the latter. Children sing instinctively, and they make their own songs, without waiting for the communal inspiration of group dancing." Hence it is reasonable to assume that primitive verse-makers produced their own poetic constructions. The author believes, thirdly, that the ballad appears rather late in literary history, if by ballad we mean a song-tale. The fourth thesis is that "incremental repetition" is not peculiar to the ballad alone but appears in "all types of popular poetry, from nursery songs to revival hymns," and therefore may neither designate the ballad nor furnish evidence of its origin. It is maintained, fifthly, that the "story song is not a primary but a developed type in the evolution of literature," and emerged from a "higher origin than unlettered folk-improvisation." The type of song-tale created among modern cowboys, soldiers, negroes and other groups is relatively inferior; and yet these groups ought to be no less capable than primitive society of ballad production. Finally, the author urges that it is not true, as some assert, that no more ballads will ever be composed. Perhaps no more ballads of the Child type will be produced, but there will be ballads of new types.

In explanation of the mediaeval ballad literature the hypothesis is offered that it may have "emerged under the influence of the clericals, or in something like it."

The thorough manner in which Professor Pound has collected representative primitive literature and her study of it give weight to her contentions, a support which they especially need since they are in opposition to the prevailing theories of the present time. Only the professional student of literature, however, is competent to render expert criticism of the book. The evolution of poetry no doubt throws light upon certain phases of what may be called mental phylogensis, but it has been outside the author's province to develop her material from this point of view.

H. G. BISHOP

*Grundriss der Psychophysik.* By G. F. LIPPS. 3te, neubearbeitete Auflage mit 6 Zeichnungen. Berlin & Leipzig, Vereinigung Wissenschaftlicher Verleger. 1921. Pp. 132. 25c.

This little work appeared first in 1903 (167 pp.) as no. 98 of the Götschen collection. In its original form it gave a straightforward and unpreluded account of psychophysics as the border-discipline between psychology and